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A brief history of predators, sheep farmers and government in the Western Cape, South Africa

This paper provides a brief history of the conflict between South African sheep farmers and predators (and we touch also on the debate between diverse stakeholders over how best to respond to that conflict). We focus in particular on black-backed jackals and commercial sheep farmers in the Western Cape Karoo, drawing on historical sources, colonial records, early ecological thinking and observations by farmers to paint a picture of this dynamic conflict. The paper forms part of an inter-disciplinary project about sheep farming and predators in the Karoo.[1]

The Colonial period: 1652-1910

The black-backed jackal (*Canis mesomelas*), commonly known as the 'rooijakkals' (red jackal), is a long-standing foe of South African sheep farmers. When Jan van Riebeeck colonised the Cape in 1652 on behalf of the Dutch East India Company, he and his crew purchased fat-tailed sheep from the Khoikhoi (also known as Khoekhoen) herders living in the area. The clothing of these indigenous herders included jackal pelts (Wilson, 1969: 55) and they closely guarded their flocks against jackals and other predators, placing them in protective enclosures ('kraals') every night. The settlers soon learned about predators: van Riebeeck's journal complains that their sheep were 'daily taken from us and devoured by lions, tigers [probably leopards but perhaps also caracals] and jackals' (Van Riebeeck's journal translated by Moodie, 1838). The colonist's sheep were moved to the safety of Robben Island in Table Bay (*ibid*), but as the settlement grew, sheep flocks expanded onto the mainland. The Dutch put a price on the heads of predators and the British continued this practice when they took over the Cape Colony.[2] In 1815, the government was paying 25 rixdalers for a leopard, 20 rixdalers for a hyena and 1 rixdaler for jackals and wild cats (Beinart, 2003: 204).

[1] Thanks to Jane Carruthers for comments and suggestions on an earlier draft.

[2] The British conquered the Cape in 1795, but the colony was returned to the Batavian Republic under the Peace of Amiens in 1802 and then re-conquered by the British in 1806. It became a formal colonial possession in 1814.

Colonial sheep farming expanded into the South African interior, a process facilitated by a violent process of conquest and dispossession. The Khoikhoi lost their land (ending up working mostly for colonial farmers as herders and servants), the San/bushman were hunted and killed, and despite significant resistance during the frontier wars, Xhosa farmers could not prevent the expansion of colonial settlers into their lands in the eastern Cape (Davenport & Saunders, 2000: 21-35, 129-162). Khoi oral culture, that had long included tales about jackal tricksters outwitting lions, evolved to show jackals outwitting 'boers' (the Dutch-speaking settler farmers). According to Wittenberg, the Khoikhoi were reinventing 'an ancient but versatile figure in their folklore, the jackal trickster', making it 'the imaginative vehicle for a symbolic reordering of colonial power relations in which they, and not the *boer*, could emerge triumphant' (2014: 607).

Merino sheep were introduced into the Cape Colony in the 1840s and wool soon became the mainstay of the economy (Katzen 1969: 291; Hobart Houghton 1971: 5). The discovery of diamonds (1866) and gold (1884) sparked strong economic growth and demand for food (including mutton) from rapidly growing urban areas initially in Kimberly, and subsequently the Witwatersrand. The number of sheep grew from about 10 million in 1865 to 16.7 million in 1891, mostly in the dry interior Karoo (Lilja, 2013: 45).

Rapidly expanding human presence in the Karoo had a major impact on wildlife. Game hunting and the fencing in of farmlands ended the great springbok migrations (Roche, 2004: 138-145) and apex predators were either extirpated (lions) or pushed into the mountainous areas (leopards). The removal of these large predators, plus the growing supply of sheep was, however, good for mesopredators, notably black-backed jackals and caracals (*Caracal caracal*), commonly known as 'rooikatte' (red cats) or lynx. The stage was set for escalating human-wildlife conflict between them and sheep farmers. Their growth in importance as a predator of colonial livestock is reflected in the relative price of jackal bounties over the century: whereas jackal bounties were one twenty-fifth the value of a leopard bounty in 1815 (see above), by the end of the century, jackal and caracal bounties were 70 percent of that for a leopard.[3]

Farm diaries from the Collett and Rubidge families provide some indication of the growing jackal problem. In 1831, James Collett purchased land to farm merinos on the Koonap rivier, near Fort Beaufort in the Eastern Cape and in

[3] By the end of the century, a jackal and caracal proof was worth 7 shillings, and a leopard was worth 10 shillings (Beinart, 2003: 204).

1838 the Rubidge family purchased substantial land outside Graaf Reinet for the same purpose. William Beinart, a historian who studied these diaries, observed that:

> 'Both the Collett and Rubidge diaries report regular attacks by predators, as well as continuous attempts to hunt them and poison them with strychnine. In the Koonap, Collett experienced the greatest problems in the 1830s from wild dogs; he also recorded leopards (called tigers), hyenas and jackals. By the mid-nineteenth century in Graaf Reinet, when the Rubidge diaries begin, losses from wild dogs and leopards were occasionally mentioned, but it was mainly jackals that threatened the sheep' (2003: 58).

In 1889, the Cape government started subsidizing 'vermin' extermination by topping up the bounties paid by farmer organisations and local governments for dead predators, and six years later the bounty system was converted into a public system managed by magistrates (Van Sittert, 2005: 282). Bounties paid on predator 'proofs' (initially just the tail, but eventually the entire skin) provided income for the rural poor[4] and contributed to the eradication of the larger predators such as lion and spotted hyena from most farmland. Wild dogs, known to attack and kill more livestock then they consumed, went extinct in South Africa everywhere but the Kruger National Park because of such persecution as well as shrinking territories and diseases carried by domestic dogs (Beinart, 2003: 198-199).

The bounties on jackals and caracals by this time were sufficiently high, and the numbers of black-backed jackals and caracals sufficiently numerous that farmers complained that people could make a better living hunting them than working on farms. In Vryburg, at the end of the century, four claimants (all of whom were black) earned over £200 each in one year, over ten times the annual agricultural wage at the time. The most successful of them, 'Jan' claimed for 5 leopards, 32 wild dogs, 62 caracals, 17 baboons and 655 jackals in one year (Beinart, 2003: 211).

The 1899 Vermin Extermination Committee heard evidence that 'the jackal plague [was] spreading and that jackals are now found in many parts of the Colony where they were formally unknown' (quoted in Beinart, 2003: 211). Witnesses attributed this to black-backed jackals breeding on state-owned lands (especially the forest reserves of the Eastern Cape), on under-used farms and on

[4] The system was also rife with fraud as bounty hunters produced fake tails and imported jackal pelts into the region (Van Sittert, 1998: 346-7; Beinart, 2003: 210).

cattle farms where farmers tolerated jackals as a means of controlling hares and dassies (*ibid*: 211-212). This 'plague' appears to have worsened during and in the aftermath of, the South African war of 1899-1902 (known also as the 'Anglo-Boer War') between Britain and the Republics of the Transvaal and Free State.[5]

> 'The South African war was a good one for jackals. The bounty on their heads was reduced in the Cape, and large numbers of livestock were on the move or killed. In the Free State, particularly, farms were left less protected as men went to war and women were sent to camps; perhaps three-quarters of the small stock were lost. Carrion was left on the veld after battles, along transport routes and around the dispersed military encampments. Many of the poisoning clubs which had proliferated in the 1890s faltered in the politically fraught atmosphere, where English- and Afrikaans- speakers as well as loyalists and rebel Afrikaners came into conflict' (Beinart, 2003: 214).

Farmers in the Cape suffered fewer war-related stock losses than in the old Afrikaner republics (where many farming families ended up in concentration camps during the war), but they faced a growing problem of predation. The Rubidge family had started fencing camps in their farm at the end of the nineteenth century, and rising jackal predation in the early 1900s prompted them to redouble their efforts (Lilja, 2013: 129-30) and then to pay workers to hunt and poison jackals (*ibid*: 154-5). Adding to the woes of sheep farmers across the country was the sharp decline in wool exports in 1900 and wool prices stagnating during the 1890s and 1900s at half the 1875 level (Beinart, 2003: 14). Between 1891 and 1904 the number of sheep in the Cape Colony fell by 30 percent,[6] a consequence of war, adverse economic conditions, drought, disease and predation.

State-sponsored persecution in the Union of South Africa

In 1910, the old Afrikaner Republics and British colonies were incorporated as provinces in the new Union of South Africa. Sir Frederic de Waal, the first

[5] These Republics were created by Voortrekkers who had migrated out of the Cape between 1834 and 1942 to escape British rule. They received formal recognition from Britain in the 1850s.

[6] The number of sheep fell from 16.7 million to 11.8 million between 1891 and 1904 (Lilja, 2013: 45).

Administrator of the Cape Province (from 1911 to 1925), sought to transcend still festering political war wounds in the rural areas of the Cape by arguing that jackals were 'non-political chaps' that would 'eat lamb impartially' irrespective of the politics of the owners and arguing that local co-ordinated action was required against 'freebooting jackals' (quoted in Beinart, 2003: 225-6). He increased the bounties on black-backed jackals and caracals, expanded hunting and poisoning in state forest land, subsidised the use of hunting dogs and supplied poison at cost to 'vermin clubs' and landowners. The sharply increased bounties once again provided a significant source of income for the rural poor and in the more mountainous areas, shepherds and bywoners (poor tenants) reportedly went to 'a lot of trouble to exterminate the red cat for reward' (quoted in Beinart, 2003: 219). In the Gamkaskloof, hunters could reportedly make a better living off the proceeds of predator bounties than from farming (Green, 1955: 114).

Under the 1917 'Vermin Control Ordinance', the Cape was divided into 17 'circle committees' comprising local provincial counsellors and divisional council appointees. These committees defined the duties of vermin clubs, framed regulations for laying poison, supervised hunting with dogs and administered the bounty system (Beinart, 2003: 227). The circle committees could authorise hunting clubs to enter private property without the consent of the landowners and to charge them five times the price of the bounty for animals killed on their land (*ibid*: 228). An official bounty of 10 shillings a jackal and 15 shillings a caracal was paid by divisional councils, two thirds of which could be claimed back from the provincial government (*ibid*: 227). In some places, the local council topped up the bounty, for example a jackal bounty in Bredasdorp was worth £5 (*ibid*: 227). Between 1914 and 1923, the number of jackal bounties rose from 2,501 to 57,492 (a total of 317,787 over the period) and the number of caracal bounties rose from 123 to 4,963 (a total of 25,406) over the same period (*ibid*: 229).

This widespread and provincial government-sponsored assault on predators, especially the black-backed jackal was supported by an emerging colonial ecology depicting the species as cowardly, unworthy and as a threat to human civilisation. An important voice was F. W. FitzSimons, the Director of the Port Elizabeth Museum who, as Beinart notes, 'was less cautious than modern zoologists in using a range of anecdotal sources, including reports by farmers, and in suggesting a sequential history of animal behaviour' (1998: 183). FitzSimons argued in his magisterial *The Natural History of South Africa: The Mammals* (volume 2) that the black-backed jackal was once an ecologically useful scavenger (in his colourful phrasing, 'Nature's Sanitary Corps'), but that as a consequence of the destruction of wildlife was now being forced to 'make a

living by helping himself to the colonist's domestic animals'. FitzSimons declared the black-backed jackal to be the 'worst form of vermin with which man has to contend in his struggle to colonise South Africa' (1919b: 100). The 1923 Union-wide Drought Commission went one step further to conclude that the jackal was 'a dangerous menace to the state' (UG 49-1923: 20). The key argument was that because of the jackal, sheep farmers were forced to kraal their sheep, resulting in disease, loss of wool quality, destruction of the veld (through trampling), unnecessary labour costs and greater stock losses during droughts as animals in poor condition were forced to walk long distances each day to reach grazing (UG 49-1923: 7). Farmers also complained to the commission about losses to jackals increasing during drought years (Beinart, 2003: 214), presumably because they were targeting weaker animals and perhaps because the natural prey base was denuded. The Commission recommended that the government 'do its utmost to abolish the kraaling system and make it as easy as possible for the farmer to put the paddock system into effect' and thus that 'it will be necessary…. to exterminate the jackal, to provide fencing on easy terms and to facilitate the provision of drinking water for stock' (*ibid*: 17).

In FitzSimons' harsh assessment, the black-backed jackal was 'one of those animals which sentence to death must be pronounced upon' (1919b: 100):

> 'We cannot blame him for refusing to die of starvation so long as there are tender lambs, kids, poultry, and young ostriches to be had, for we have robbed him or his birth-right in the shape of the various game animals and birds. However, as man spreads over the land the jackal must vanish for the two cannot live in proximity in peace. It is but the operation of the law of the survival of the fittest' (*ibid*: 103).

FitzSimons noted that the caracal could be more destructive of domestic stock and small game than a leopard, and was even known to attack people, though this was exceptional (1991b: 156-158). However, he was far less concerned about it than the black-backed jackal. In his assessment, the caracal had been pushed out of the 'open country', and that except 'in the wilder secluded parts of the country, where the European with his gun and dogs rarely penetrates, this large and wary cat has now taken to the dense forests and thickly wooded kloofs and scrub covered hillsides' (1919a: 155). He noted that several caracal had recently been captured and killed in Uitenhage, a more open, Karoo habitat, but asserted that people 'living in the open drier parts of South Africa have but the faintest idea of the extreme difficulties with which the stock farmer has to contend who lives in the neighbourhood of these dense thorny forests' (*ibid*: 156).

FitzSimons predicted that humans would eventually exterminate the black-backed jackal but believed that 'the time will be far distant before that desirable end can be attained' (1919b: 100-101). The Drought Commission was similarly genocidal in attitude, but similarly depressed about the prospects of eradicating this 'veld pirate':

> 'The jackal is responsible for a large share of the incorrect farming practiced by our graziers, who by jackal-proof fencing are now endeavouring to eliminate, if they cannot eradicate him. Unfortunately, there are many portions of South Africa where this veld pirate will for a great many years, be safe from danger as far as ordinary methods go. Perhaps our bacteriologists and zoologists will be able to devise some safe and sure method of destroying him and thereby save the country millions' (UG 49-1923: 27).

However, the widespread use of fencing and co-ordinated hunting efforts within enclosed areas – the so-called 'fence and clean-up' approach – appears to have offered sheep farmers more respite, and more quickly, from black-backed jackals than either FitzSimons or the commissioners imagined. By the time that FitzSimons drafted his three-volume natural history of South Africa, technological change had already transformed the nature of sheep farming. As of 1891, there were only 617 boreholes (known as artesian wells) in the Cape Colony, but by 1903 – a mere twelve years later, the government drilling service had sunk 4,000, and in 1911 the census recorded 7,513 boreholes in the Cape (Beinart, 2003: 171-2). Boreholes with wind pumps were crucial in enabling commercial sheep farmers to switch away from the kraaling system, which was increasingly regarded by botanists, soil scientists and veterinary scientists as a serious cause of environmental degradation and disease (Beinart, 2003: 138-141), to allowing sheep to range freely in fenced camps supplied by artificial water sources (Archer, 2000: 683-5). To protect these free-ranging sheep from predators, farmers 'cleaned' jackals out of the camps and used 'jackal-proof' wire mesh fences packed with rocks to keep them from re-entering.

The 'fence and clean-up' principle had been tried and tested against black-backed jackals as early as the 1850s when Michael van Breda, a Caledon farmer, erected a four and a half foot wall around 7,000 morgen (14,000 acres) of his land, and then 'cleared' the area with a pack of fox-hounds. In his first year, he killed 24 black-backed jackals, and then his annual kill dropped to two or three (*ibid*: 220). However, this was too expensive for wide-spread replication. It was only with the advent of industrial wire fencing in the 1890s and the use of wire-weaving machines after the South African war, that cheaper 'jackal proof' alternatives to walls became available (Van Sittert, 1998: 348-9). Anders

Ohlsson, a Swedish brewing magnate in Cape Town, demonstrated that wire mesh fences could be effective by erecting them around 70,000 acres of his land, and then killing predators within the boundaries, allowing sheep, exotic deer and birds to flourish there (Beinart, 2003: 222). Sheep farmers were able to follow his example especially after rising wool and mutton prices during the First World War provided them with the capital to do so. Also important was the 1905 Fencing Act that encouraged farmers to form fencing co-operatives, and the 1912 Fencing Act (amended in 1922) which further assisted the process by providing loans and mechanisms to encourage joint action by neighbours (*ibid*: 224; Van Sittert, 1998: 351).[7]

Actions against black-backed jackals varied across the province, but in Beinart's assessment, with this 'more organised assault, the night of the jackal finally arrived' (2003: 228). By 1920, the year after FitzSimons' book was published, Sydney Rubidge had fully enclosed Wellwood farm in jackal-proof fences, and no further jackals were reported until 1946 (*ibid*: 233). In Bedford, in the Eastern Cape, black-backed jackals were reported fenced out by 1920, and that 'apart from the odd intruding jackal, most sheep farmers experienced no problems' with predators until the 1960s when caracals became more of a menace (Pringle & Pringle, 1979: 2). According to the 1923 national Vermin Extermination Commission, districts that previously had previously suffered from stock losses as high as 12 percent were by the early 1920s experiencing negligible problems (*loc. cit.*). The notion of what constituted 'vermin' changed shortly thereafter. From concentrating on predators, the Vermin Control Ordinance was amended (in 1923 and again in 1946) to include a range of animals that damaged fences (e.g. porcupines), were perceived as preying on chickens (notably raptors), or which competed with livestock for grazing (e.g. hyraxes known locally as the Cape dassie).

Zoological estimates of the distribution of black-backed jackals circa 1950 suggest that they were 'still widely distributed in the Union, although they are exterminated where possible outside the game reserves on account of the damage they do to livestock' (Ellerman *et al*, 1953: 108). As of the mid-1960s, the jackal was still regarded as a major predator of sheep, but as one that was 'relatively well controlled' through hunting, trapping and poisoning (Hey, 1967: 158). Instead, the caracal was perceived to have been increasing in range (and in some places becoming the dominant predator of sheep, small antelope and game birds).

[7] Although the 1912 Fencing Act did not subsidise wire netting, it helped assist farmers with the fence posts and wire strands. Between 1926 and 1929, 15,302 kilometres of jackal-proof fencing was constructed in the Cape Province (De Wet, 2006: 17).

The caracal was first described by Schreber in 1776 on Table Mountain, but by the early 1950s it was regarded as 'extinct' there, as 'not uncommon in mountainous districts of the eastern Cape', as having been 'recorded' west of Kimberley, at Clanwilliam and in Namaqualand, and as possibly still occurring in the Orange Free State (Ellerman *et al*, 1953: 148). A quarter of a century later, however, Pringle & Pringle argued that the caracal had probably maintained its original range in Southern Africa, that it still occurred on Table Mountain (but was uncommon) and that by the late 1970s its numbers were increasing in the Cape Province (1979: 1) :

> 'The fences were no barrier to them, they spread to farms where they had not previously been observed, and some began to kill full-grown sheep and goats. Poison proved ineffective, as lynxes ate only freshly killed meat, and spring traps caught a wide range of harmless species in addition to lynxes' (1979: 2).

As noted earlier, the 1923 Drought Commission saw black-backed jackals as the major threat to sustainable sheep farming and recommended jackal-proof fences as a key aspect of the solution to predation. Caracals can easily spring over or climb a fence,[8] so it was clear that the 1923 Commission did not regard them as a serious problem (if they had, they would not have seen jackal-proof fencing as a solution). However, this changed over the following half century. By the end of the 1970s, the caracal was the most commonly hunted predator in the Ceres Karoo (Conradie, 2012; Conradie and Piesse, 2013) and the eastern Cape (Bailey & Conradie, 2013). A survey of Cape Department of Nature and Environmental Conservation records circa 1980 revealed that 'in 82% of the Cape Divisional Council districts', caracals were 'considered by farmers to be the principal wild predator of domestic small stock' (Stuart, 1982: 19). FitzSimons's assessment from 1919, that the caracal had been pushed out of the open Karoo and into thorn forests and densely populated *kloofs*, was either incorrect at the time, or caracals subsequently recolonised the lands FitzSimons confidently believed they had been driven out of.

Despite the rise of the caracal as key predator, the black-backed jackal retained its presence in some parts of the Karoo. Green recounts how a farmer in the Riversdale district was plagued by losses from a single black-backed jackal, known as 'Broken toe' from his distinctive spoor, and placed a high price on his head of £30 in 1924. Despite strenuous efforts to hunt, trap and poison the

[8] As Rosevear *et al*. point out, 'they are such accomplished climbers that they are difficult to fence out' (1974: 407).

jackal, he survived another eleven years before being shot. By that time, the price on his head was £60 and he was thought to have killed over 4,000 sheep (Green, 1955: 171-172). Circa 1950, black-backed jackals were reported as 'very common in most parts' of the eastern Cape and as 'probably' still occurring near Vryburg, the Augrabies Falls and Namaqualand in the western Cape (Ellerman, *et al*., 1953: 108). They were also known to be migrating into the Cape Province from other provinces and neighbouring countries (UG 45/1951: 7).

Even so, it is important to recognise that farmers were able to extirpate jackals at a local regional level for decades at a time. Richard Murray, who has farmed in the same district as Wellwood (the Rubidge family farm) since 1957, reported that he had no problems with black-backed jackals in the area until the mid-1990s.[9] Lukas Botes, then chairman of the Laingsburg agricultural society, also recalls that black-backed jackals appeared on his farm for the first time only in the 1990s. Botes, whose family has farmed in the Laingsburg district since the time of the Great Trek,[10] recalls that his 80-year old father had helped 'clean' jackals out of the area when he was a teenager in the late 1940s and that subsequent co-ordinated hunting had been 'unnecessary'.[11] He and the other farmers in the district had experienced occasional predation from caracals, particularly farms in more mountainous regions and along river beds, but did not regard the problem as unmanageable. The re-emergence of the black-backed jackal as a serious predator in the area, however, caused great alarm. We pick up this story below.

The rise of conservation: from vermin species to problem animal

In 1956, the final year of the state-managed bounty system in the Cape Province, bounties were paid on 20,084 jackals and 3,408 caracals, but also on 219,322 dassies, 15,323 silver foxes (i.e. Cape foxes), 8,478 African wildcat, 7,012 baboons, 5,640 crows, 814 mongooses, 359 porcupines, 153 eagles, 121 Aardwolves, 99 otters, 90 leopards and 40 badgers (Hey, 1964: 60). Whether these bounties were necessary or effective in reducing black-backed jackal or caracal populations remains moot and they may have continued largely for

[9] Interview with Richard Murray, 4 November 2014.
[10] The 'Great Trek' (1935-1846) entailed waggon trains of Dutch/Afrikaans settlers moving out of the Cape Colony and into the interior to escape British rule in the Cape. It resulted in the formation of two Afrikaner Republics, the Transvaal and the Orange Free State.
[11] Interview with Lukas Botes, 2 April, 2013.

social and political reasons. Certainly in the 1930s, when there was rising concern about 'poor whites' in the countryside, payments of bounties and subsidies to vermin clubs functioned also as a form of social welfare (Van Sittert, 2016: 116-7).

By the late 1950s, when the official bounty system ended in the Cape Province, the poor white problem had been addressed through other policies (including protected employment such as job reservation for whites on the railways) and more conservation-minded ecological thinking was on the ascendance. The increase in rodents (including springhares), insects and uneaten carrion was, by this time understood to be an undesirable consequence of removing jackals from some areas (Beinart, 2003). It was also clear that the black-backed jackal was continuing to adapt (and perhaps also to evolve) in the face of persecution, making it harder to control. Writing in *Veld and Flora* in 1953, Van der Merwe worried that because 'the wary, strong and healthy jackals are not so easy to destroy… in South Africa we have bred a vigorous jackal' (1953: 6-7).

In 1952, the Cape Province created the Department of Nature Conservation, appointing a trout specialist, Dr Douglas Hey as its first Director. He had a strong sense of the ecological importance of predators. When it had become clear, by the mid-1960s, that caracals were becoming a problem for sheep farmers as black-backed jackals were relatively well controlled, Hey noted that there would thus 'seem to be some ecological relationship between these two animals' (1967: 160). He also noted the rise of baboons as a predator of sheep, linking this to declining leopard populations (*loc.cit*). In his view, the blanket targeting of an entire species was inappropriate, and that attention should be paid to getting rid of problem individuals:

> 'a predator normally turns to domestic stock only when its natural food becomes depleted, usually as a result of the activities of man' and that 'farmers in general are too quick in condemning a species as a whole when an individual specimen has been caught preying on livestock…. (the) human race also has its criminals, yet this is no reason for condemning all men!' (cited in Van Sittert, 2016: 119).

The administration of the Vermin Control Ordinance was delegated to the Cape Province's Department of Nature Conservation in 1955 and in 1957, following a commission of inquiry, the Cape Provincial Government removed all animals except black-backed jackal, caracal, Cape dassie, baboon and bush pig from the list of vermin (Stadler, 2006: 14). The bounty system was replaced by 'technical aid' and financial support to hunt clubs, but with bounties remaining on black-backed jackals and caracals until hunt clubs were up and running. Local level

bounty systems, however, continued in some places through a combination of levies on farmers and local government subsidies. In Uitenhage, for example, the payment of vermin bounties continued up until 1994, financed by a levy on farmers (50 cents per hectare) and managed by a divisional council committee (Snijder, 2015: 113).

Hey was a pragmatic conservationist and keenly aware of the importance of obtaining the co-operation of farmers to protect biodiversity. Writing in the mid-1960s he observed:

> 'Today, the Cape Province is largely subdivided into farms and consequently the farm has become the habitat of surviving forms of wildlife. Wildlife conservation can, therefore, only be effective with the support and good will of the farming community. The South African farmer, the descendent of pioneering stock, is a rugged individualist and the master on his own property. Conservation measures cannot be enforced, they can only be introduced on a basis of cooperation and mutual understanding. While the majority of farmers are prepared to accept wild animals as residents on their farms, they will not tolerate undue crop damage or losses of livestock' (1964: 59).

He later emphasised that farmers could 'eliminate all wildlife from his land without breaking the law, by simply destroying their habitat' through for example, the sub-division of farms into small camps for intensive grazing schemes. In his view, 'wildlife conservation, therefore, requires the goodwill of the farmer which can only be assured by sound public relations' (Hey, 1974).

Significant additional resources were provided to the hunt clubs as the bounty system was phased out. A hound breeding and research station was established at *Vrolijkheid* nature reserve (1962) to supply packs of hunting dogs, and to provide training courses in trapping and poisoning (Hey 1964: 61). By the mid-1960s there were 110 hunt clubs in the province maintaining hound packs, employing full-time hunters, and receiving subsidies from the government (*ibid*: 59). In Hey's assessment, hunting with dogs was excellent for targeting problem individual animals, especially caracals (as dog packs can pick up the scent of a caracal from a dead sheep, track it down, chase it up a tree and then wait for the hunter to shoot it). Hey argued that this was 'sound conservation practice, for animals are hunted only when they are a nuisance and not merely for the sake of hunting' (1967: 158). A hound pack was kept on the farm Huntley Glen (near Bedford in the Eastern Cape) with apparent success, though according to this

account, the farmer was targeting all caracals, not just the problem individuals traced from a sheep carcass:

> 'When a lynx is reported the hounds are taken to the area before dawn (this is essential). Upon locating the scent the hounds give tongue, and from the sound it can be deduced when the lynx has taken refuge in a hole or a tree, or escaped. Once aware of the hounds the lynx attempts to evade them by doubling back on its own tracks, climbing over large boulders, or hiding in a tree until the pack has overrun the spot when it proceeds in a different direction. Despite such manoeuvres most of the lynxes chased by the hounds were killed' (Pringle & Pringle, 1979: 2).

A total of 108 caracals of all ages were taken in this manner in the Bedford district between May 1972 and November 1975.

Poison was widely used against black-backed jackals. Sodium monofluoroacetate, a poison known as 1080 that is highly effective against canids, but causes a slow and agonising death, was introduced in 1961 and the 'coyote-getter', a baited trap which discharges a cyanide cartridge, was introduced after the US Fish and Wildlife services, on Hey's request, adapted it to meet local conditions (Hey, 1967: 158). Whilst declaring the black-backed jackal to be 'relatively well controlled' by these methods, Hey nevertheless signalled some disquiet about the non-selective impact of the poison in that it also killed vultures, bat-eared foxes, 'silver jackals' (presumably Cape foxes), mongoose, dogs, genets, 'iguanas' and hyenas (*ibid*: 159-160). He also reported that the jackal's natural wariness and keen sense of smell meant that baiting the getter was an unpleasant challenge [recommended recipes included 'equal parts of well-rotted beef, sub-cutaneous beef fat and Rocquefort cheese' (*loc. cit*)] and that even when jackals were successfully attracted to the trap, a significant proportion managed to 'pull' the getter without getting killed. In 1964 he wrote that:

> 'It has been our experience that a jackal will not pull a getter a second time and we have no intention of developing a race of jackals educated to the getter. As it is, hunters claim that jackals can almost read and write' (1964: 63).

Three years on he was still complaining of mechanical defects and the need to rectify them because 'one seldom has a second chance at a smart Jackal!' (1967: 159). Subsequent research on the capacity of black-backed jackals to avoid coyote getters found that over a three year period, the proportion that came into contact with coyote getters fell from 53 percent in year one, to 49 percent in year

two and to 8 percent in year three (Brand *et al*., 1995) – thereby confirming what the early biologists and farmers had long suspected about the adaptive capacity of the jackal in this regard (see also Brand & Nel, 1997).

Although Hey was innovative in his attempts to assist farmers to kill black-backed jackals, he was clear that total extermination was neither feasible nor desirable, arguing that 'the Karoo will have lost something irreplaceable should the call of the Jackal no longer be heard on a calm moonlight night!' (1964: 69). He also observed that a 'program of total extermination, particularly of minor predators such as bat-eared foxes and mongooses would in time lead to excessive populations of rodents and insects which might prove more difficult and expensive to control' (1964: 69). Such broader ecological concerns steadily gained ground in conservation circles and in 1973 the Hazardous Substances Act restricted the use of sodium cyanide, 1080 and strychnine (Snow, 2006).

However, the use of poison was not eliminated from agricultural lands as farmers could still obtain it from permit holders, or use agrochemicals and pesticides to poison predators. Temick, (the brand name for Aldicarb in South Africa) is a widely available agricultural insecticide and nematicide used illegally as a rodenticide and to kill canines (Arnot *et al*., 2011) and other predators. A Karoo farmer told us that he had used 'two grains' of Temick (hidden inside a boiled egg) to kill a feral cat and another told us how he had tried (unsuccessfully) to poison a caracal by coating live chickens with the agricultural pesticide and letting them loose on his farm (personal communication). The caracal apparently ignored the chickens, which unharmed by the poison, made nuisances of themselves scratching at the kitchen door for food. We have also heard stories of farmers experimenting with home-made poisonous concoctions on captured predators and feral dogs. In 1991 and in 2003 additional regulations were passed (in terms of the 1947 Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act) explicitly to outlaw the use of agricultural or livestock remedies for any purpose other than their intended use, thereby making it a serious office to use them to poison predators. But there are real practical problem involved in policing such activities and some farmers (perhaps many) believe these regulations are illegitimate and an unacceptable imposition of urban values at the cost of their livelihoods.

In 1978, a Cape commission of investigation recommended that the list of declared vermin be amended to just three: black-backed jackal, caracal and vagrant dogs (Stadler, 2006: 15). Nine years later the Problem Animal Control Section of the Cape Department of Nature Conservation was closed and the provision of baits and lures to farmers and hunters was ended (*ibid*: 16). Subsidies to hunt clubs were phased out between 1988 and 1993, and in 1989

the hound breeding facilities at *Vrolijkheid* were closed (*ibid*). This reflected the declining economic importance of agriculture (and particularly small-stock farming) for the economy,[12] as well as the general rolling back of government interventions in agriculture (Kirsten & van Zyl, 1996). Concerns about cruelty to animals may also have played a role in the decision to close the hound breeding facilities. For example, the Animal Protection Act (Act 71 of 1962) ruled that hunting dogs must not have physical contact with, or kill, predators. Although difficult to police, such legislation reflected the ascendance of (mostly urban-based) concerns about animal protection.

Predator policy under democracy

In 1994, after South Africa made the transition to democracy, local government was restructured and financial support for predator control largely disappeared. This reflected a shift in agricultural policy priorities, notably towards supporting emerging (black) farmers. Far more attention was paid to issues of land restitution and how this could be reconciled with parks and protected areas (Carruthers, 2007).

However, as predation re-emerged as an issue in the 1990s, the small stock industry started engaging with the government. A loose consultative structure called the National Problem Animal Policy Committee (NPAPC) drew together government officials from nature conservation and the old regional services councils, hunters and industry organisations such as the Red Meat Producer's Organisation (RPO) and the National Woolgrowers Association (NWGA). At a conference in the Orange Free State in 1993, delegates reportedly emphasised the need for ongoing government support for predator control given the imminent demise (due to the cessation of government funding) of Oranjejag, the last remaining hunt-club. This consultative policy-making process, however, 'faded' as it was overtaken by political events, notably the creation of nine provinces with new administrations and legislative priorities (de Waal, 2009). Generating new institutions and legislation (especially regarding land reform and security of tenure of farm workers) dominated the agricultural agenda for the rest of the decade. The management of predators was left to the provinces, but in a national context in which the Department of Environmental Affairs and

[12] Between 1960 and 2011, the contribution of agriculture to South Africa's Gross Domestic Product fell from 12.3 percent to 2.4 percent and the contribution of wool and mutton to gross agricultural output fell from 17 percent to 3.7 percent.

Tourism (DEAT) was supposed to set minimum standards and guidelines, with the department of agriculture playing an unclear role.

By the mid-1990s, sheep farmers were complaining vociferously about black-backed jackals. A common refrain was that many were seeing these animals for the first time in their lives, and had to consult their fathers and grandfathers on how to control them. The decline in state support for fencing and predator control as well as the rise in game farming and nature reserves was widely believed to be the root cause of the problem (Nattrass & Conradie, 2015). There are no studies of the impact of black-backed jackals in communal farming areas. However, by this time, communal farmers in Namaqualand had come to assume that the presence of black-backed jackals was inevitable, or as one farmer put it, '*die jakkals is die Here se hond*' ('the jackal is the Lord's dog') ((Lutchminarayan, 2014: 28).

In 1995, the NPAPC recommended *inter alia* that in updating and creating appropriate legislation, provinces should not assign problem animal status to any species, that translocation should be an option in dealing with individual damage causing animals, that problem animal hunters be required to undergo training and that hunt clubs should be voluntary and prevented from accessing private property without permission (Stadler, 2006). The following year, Cape Nature Conservation (subsequently known as CapeNature) started a process to revise the legislation (notably Ordinance number 26 of 1957 as amended) around the control of damage causing animals. This involved consultation with animal rights groups, environmental organisations, farmers and academics. This lengthy process was shaped also by changing national legislation, notably the National Environmental Management Biodiversity Act (Act 10 of 2004) which *inter alia* further restricted the use of poison and the use of dog packs to hunt predators, and the Firearms Control Act (Act 60 of 2000) which outlawed particular models of coyote getter.

In 2005, CapeNature obtained legal opinion on its emerging draft regulations and decided to stop providing training in the coyote-getter with immediate effect (given its potential to kill many non-target species) and started investigating further restrictions on the use of gin traps (because they are cruel and non-specific). In 2007, after a leopard died in a gin trap, CapeNature formed a loose 'partnership' with an environmental NGO to work towards the elimination of gin traps and to promote 'holistic' non-lethal predator control methods. A key idea within this emerging 'environmental jackal narrative' was that hunting was causing the jackal problem to worsen (by creating vacant territories for dispersing juveniles and selecting for ever-more wary jackals) and that farmers

would be better off protecting their sheep and otherwise co-existing with dominant jackal pairs (see discussion in Nattrass & Conradie, 2015).

In late 2008, CapeNature announced that from January 2009, various control methods, including night-hunting of jackals, were no longer going to be allowed.[13] This was a problem for hunters because night hunting technology (the use of spotlights, a chair and rifle mounted on a metal arm attached to a bakkie, and a 'FoxPro', that is a sound system playing various animal calls to attract jackals) had become widespread. Professional hunters offered courses in how to use a FoxPro.[14] The advantage of call-and-shoot night hunting was that it targeted black-backed jackals specifically (unlike gin traps and poison which killed many other non-target species). The disadvantage was its cost, and professional hunters worried that wide-spread use by amateurs could be alerting black-backed jackals to this new threat, in other words help the species learn quickly to avoid spotlights and even start detecting the difference between a FoxPro and 'real' calls.[15]

The small stock industry in the Western Cape responded angrily to the proposed ban on night hunting, seeing it as an assault on their ability to target problem animals on their own land – and as forcing them to use more cruel and non-specific methods such as gin traps and poison. Whilst typically supportive of nature conservation, the dominant farmer narrative about black-backed jackal ecology remained much closer to that articulated by FitzSimons almost a century earlier, i.e. that its presence was incompatible with domestic sheep farming. Indeed, just as FitzSimons had pronounced the death sentence on the jackal, many farmers continued to refer to them as '*ongerdiertes*', literally 'non-animal' in Afrikaans. Others accepted (even embraced) more modern conservation ideals and experimented with non-lethal protection methods for their flocks. These included: the use of neck collars for sheep (to protect them against being throttled by jackals, yet jackals reportedly responded by attacking sheep elsewhere on their bodies); '*skaap-wagters*' (literally solar-powered 'sheep watchers' that flash and emit sound randomly); and the use of guard animals such as donkeys, dogs and alpacas.[16] The Murray family outside Graaff Reinet strapped flashing lights to the heads of their sheep, and we were told

[13] See Nattrass and Conradie, (2015: 61). NB, this announcement can no longer be found online.
[14] Courses included shooting skills, tracking skills, lessons in black-backed jackal behaviour and ecology, and the use of the correct calls for the time of year (calls to attract mates and warn intruders during the breeding season, prey calls appropriate for the correct season, etc.).
[15] Interview with Andre Botha, 5 November 2014.
[16] See PMF (2016) for a review of the various protective methods.

about another farmer in the area who kept a flock of feral goats in his mountainous pastures to 'keep his *rooikat* happy' and away from his sheep.

Even farmers that experiment with non-lethal measures insist on the right to use lethal control if necessary. The Western Cape government subsequently relented somewhat in the face of industry pressure by making it easier for farmers to obtain permits to shoot jackals and caracals (including at night, as long as it was on their own land),[17] but this was severely criticised by animal rights activists and proponents of non-lethal approaches to predators (Nattrass & Conradie, 2015).

The issue also played out at on the national stage as the NPAPC engaged with the DEAT, resulting in the convening of a meeting in January 2009, which in the eyes of one observer, 'may have caused more discord than synergy' (de Waal, 2009: 46). The DEAT then released draft 'Norms and Standards for the Management of Damage Causing Animals', which the agricultural industry regarded as 'biased', demanding that both the Department of Agriculture, Forestry and Fisheries and the DEAT be involved (*loc. cit*). It also prompted the NWGA, the RPO to join with the South African Mohair Growers Association and Wildlife Ranching South Africa to form the Predation Management Forum (PMF) in 2009. Representatives from the PMF subsequently visited the United States to gain insights from how the US Department of Fish and Wildlife controlled problem animals like the coyote. For the chairman, Coligne Stegman, this was an 'eye-opener' in that the US government provided expert marksmen to shoot predators when necessary and because of the range of traps allowed in the US (but which were regarded with opprobrium in South Africa). In his view, the same US government service that had assisted Douglas Hey in the 1950s to adapt the coyote getter to South African conditions, was continuing to assist farmers with lethal control of predators, whereas in South Africa, farmers were now unreasonably constrained and demonised rather than assisted.[18]

The PMF remains a powerful lobby for the small stock farming industry, and in the absence of state support, provides advice online and over the phone.[19] In 2016, the PMF produced a booklet (with a black silhouette of a jackal on a blood red background on the cover) about how to identify predators and what legal methods can be used to control them (PMF, 2016). The booklet noted key

[17] For a summary of the changing approach see: http://www.capenature.co.za/care-for-nature/conservation-in-action/biodiversity-compliance/wildlife-management/damage-causing-animals/ (accessed 23 March 2017).
[18] Interview with Coligne Stegman 4 November 2014.
[19] See the 'Ask our Expert' page of the PMF website: http://www.pmfsa.co.za/home/ask-our-expert (accessed 10 December 2016).

national legislation but given the complexity of the relevant provincial legislation and related ordinances, simply directed farmers to their local government offices to 'familiarise themselves' with the precise legal context they face with regard to managing predators on their land. As of the end of 2016, the legal environment for managing damage causing animals remained bewilderingly fragmented, with generally greater restrictions on farmers in the Western Cape parts of the Karoo than in the Eastern Cape.

On 10 November, 2016, the DEAT finally published the 'Norms and Standards for the Management of Damage-Causing Animals in South Africa' (Government Gazette no. 404012, notice 749 of 2016). It begins by stating that everyone has a 'general duty of care to take reasonable measures to prevent or minimise damage caused by damage-causing animals' (paragraph 4.1), and this sets the tone for a set of guidelines that present lethal control as a strategy of last resort. Yet the precise legal framework for methods regularly used by farmers (cage traps, foothold or gin traps, call and shoot, poison collar, hounds, poison firing apparatus and denning) remained unclear, with the guidelines stating that these methods 'may require a permit, issued by the issuing authority, in terms of any applicable legislation' (paragraph 8.1). It also included specific 'minimum requirements' for the use of traps, collars etc. Those engaging in call and shoot had to be adequately trained, 'comply with the conditions applicable to the use of call and shoot method, as determined by the relevant issuing authority', submit records of call and shoot events and 'must target only specific individual animals known to cause damage' (paragraph 12 (1)). The latter requirement is extremely onerous given that it is impossible to know which individual predator is causing damage and is thus likely to be honoured in the breach.

Ongoing contestation

In short, government policy towards the lethal control of mesopredators underwent a sea-change over the past century. Almost one hundred years after FitzSimons pronounced that there was no place for black-backed jackals on a human-dominated planet (and the Drought Commission fantasised about scientists coming up with a biological weapon against them), contemporary conservation and ecological approaches emphasise non-lethal management and the removal of identifiable problem animals as a last resort. Part of this reflects changing social values, notably the rise of conservation, environmentalism and the anti-animal cruelty and animal rights movements. However, a significant contributing factor to this policy shift was the concern articulated by ecologists (and some farmers) that lethal control of a highly adaptable, intelligent predator like the black-backed jackal could be counter-productive.

Growing numbers of farmers and hunters worried that hunting could also select for 'super jackals' that were ever more wary of control efforts and thus increasingly difficult to manage. Another concern was that by removing dominant jackals, source-sink dynamics would quickly fill these vacant territories with dispersing juveniles from other areas perhaps even increasing jackal densities. Conradie (2012) and Conradie and Piesse (2013) found that the number of predators (mostly caracals) killed on farms by the Ceres Karoo hunt club in 1979-80 and 1979-87 respectively, was positively correlated with increased stock losses the following year, suggesting that hunting might have been counterproductive, perhaps for these reasons.

Whether the earlier strategies of lethal control were in any meaningful sense 'effective' remains a matter of sharp contestation. The 2012 Bothma report commissioned by CapeNature to survey the scientific literature on black-backed jackals and caracals concluded that 'all attempts at the control of black-backed jackal populations have failed' (2012: 7), specifically noting that:

> 'Oranjejag, one of the largest and oldest carnivore hunting groups in South Africa could not succeed in controlling the black-backed jackal population in their region of operations over several decades of intensive effort' and that in KwaZulu-Natal, the population of black-backed jackals stayed stable despite 15 consecutive years of hunting jackals with trained hounds' (*ibid*: 8).

While it is true that hunt clubs never eradicated the black-backed jackal, it is, however, also the case from the historical record discussed above that 'fence and clean-up' control efforts *have* succeeded, when done systematically and on a regional basis, in reducing livestock losses and keeping predators off farmlands. The historical experience of state supported predator control informs much of the contemporary 'farmer narrative' about black-backed jackals, notably that unmanaged populations can increase to problematic levels (as, for example, during the South African war) and that it *is* possible to reverse this through sustained lethal control in particular areas (Nattrass & Conradie, 2015).[20]

In addition to questioning the effectiveness of lethal control, the Bothma report noted that black-backed jackals could actually benefit stock-farmers by consuming herbivorous creatures like dassies, small rodents and springhares,

[20] Communal farmers in Namaqualand also believe that lethal control helped manage predator populations and attribute the increase in predators in part to the decline in hunting (Lutchminarayam, 2014: 42).

thereby reducing competition with domestic livestock for limited grazing (Bothma, 2012: 6). However similar arguments were made to a government investigation more than a century earlier (in 1899) about how the slaughter of black-backed jackals on the peripheries of the Kalahari had allowed mice to multiply, devouring the roots of plants and destroying the veldt of entire farms (Beinart, 2003: 194). Although black-backed jackals can prey on newborn calves, they are not a serious problem for cattle farmers, some of which have told government commissions that they valued them for controlling hares (Beinart, 2003: 211). The continued poisoning and blanket targeting of species over the twentieth century by vermin clubs probably says more about the political power of sheep farmers to affect policy than it does about inadequately understood ecological arguments about how black-backed jackals might benefit farmers in general.

According to Van Sittert, vermin clubs continued even in the face of opposition from the Department of Nature Conservation in part because they served broader ideological functions by staging a 'regular ritual re-enactment of the historical settler collective mobilised under arms in defence of the range' and by putting on a 'public display of settler hegemony over the countryside' (2016: 123-4). Van Sittert is emphasising a neglected component of our understanding of the history of black-backed jackal control in South Africa, namely its symbolic importance and associated social meanings. Whether his particular reading of the political-economy of hunt clubs is correct is of course moot. Yet he alerts us to potential social understandings and practices around lethal control that perhaps remain of cultural importance for (at least certain groups of) farmers today. More specifically, it may well be that older farmers, particularly those on long-standing family farms, are imbued with notions of masculinity and a nostalgia for past political and economic control that bias them towards killing black-backed jackals on their farms even where this may not be necessary or cost-effective.

While the black-backed jackal is clearly a long-standing foe of sheep farmers, it is also possible that jackals (and caracals) are being blamed for losses due to other causes, notably drought, disease and theft. Furthermore, as jackals are scavengers as well as hunters, evidence such as wool in jackal scat does not necessarily mean that the jackal killed the sheep (see discussion in Nattrass *et al*, 2017: 18-21). Contemporary anger about predators may well reflect a re-emerging age-old problem, but it might also be emblematic of other pressures on profit margins including rising minimum wages in agriculture, declining agricultural subsidies and stagnant real wool and mutton prices (Nattrass and Conradie, 2015).

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